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Abstract

When investigating the use of information systems within organizations, researchers inevitably make decisions relating to the grouping and classification, or "stratification," of IT users. Most commonly, users are stratified along functional boundaries or by their membership in various communities of practice. It is important to note, however, that any such method of social stratification necessarily focuses the research on certain issues while unavoidably downplaying or neglecting other concerns. Individuals whose interests, values, or identification align with these neglected issues may be inadvertently marginalized by the research approach. This observation suggests a range of ethical concerns related to the methods of social stratification employed by researchers. In this paper, we argue that that the method by which information systems researchers stratify organizational actors in their research has significant ethical implications. We propose a framework that plots stratification strategies that researchers bring to their analyses using Weber's theory of stratification and the dimensions of class, status, and party to which we add technological concerns. We offer illustrative theoretical lenses for each category in the framework and demonstrate how each lens favours certain issues and potentially neglects others.

Keywords: Social Stratification, User Classification, Information System Ethics, Communities of Practice, Max Weber

1. INTRODUCTION

Research on information systems has a history of classifying individuals within organizations according to their functional affiliations in the tradition of Lawrence and Lorsch (1967). This approach is based on assumptions of relative uniformity among individuals within a given functional unit. In recent years, there has been an increasing focus on an alternative designation based on "communities of practice" (Brown & Duguid 1991; Wenger 1999), which are networks of individuals within or across functional units that are clustered together based on commonality of interests, practices, and personal associations. These two methods of classifying individuals have enriched our understanding of the relationship between social actors and technology in a variety of organizational contexts. However, these designations are by no means exhaustive characterizations of the ways that individuals can be stratified by researchers. IT users have multiple group affiliations, local environments, unique interactions, and identities (Lamb & Kling 2003). Due to this multiple membership, actors vary in the degree of their enrollment within the various social worlds that they straddle, and thus experience what Star (1991) describes as multiple-marginalization. This multiplicity of both membership and marginalization is simply not fully addressed through the application of these two organizing perspectives. The argument we wish to advance here is that the recurring use of functional or practice-based classification may rigidify research outcomes and limit the range of lenses through which organizations are conceptualized and understood, which may in turn have an inhibiting effect on the organizations and individuals that are informed by such research. Put differently, there are ethical implications to the way IS researchers classify organizational actors.

Classification is the foundation for all cognitive activity. The impact of classification work on human life is profound as much as it is inescapable. People, things, and events only become meaningful when they are placed within a system of categories (Bowker & Star, 1999). Once classified, people, things, or events can be related and addressed based on the categories to which we deem they belong. An established system of categories provides social actors with the means for organizing and structuring their world. It makes them aware of certain characteristics in their environment and, at the same time, allows them to neglect or ignore others (Moscovici: 1988, p.4).

When conducting research, the utilization of categories is of crucial importance. As researchers, we inevitably make choices concerning the stratification of the social systems that we study and these choices have a powerful impact on the phenomena that we observe and the conclusions that we draw from our observations. In this paper, we wish to highlight the importance of these choices and their implications for research practice. We offer a framework for classifying individuals that complements the two most prevalent perspectives of stratification: functional groups and communities of practice. We draw on Weber's framework of social stratification to propose a number of additional theoretical perspectives through which organizations can be observed and that promote alternative ways of classifying people within organizations. We choose to build on Weber's work on social classification because it is foundational for a great deal of sociological and organizational research, and because it offers a rigorous framework through which multiple lenses for observing organizations and can be utilized. The remainder of the paper is organized as follows. First we establish the critical perspective by which we judge ethical activity and highlight the importance of paying close attention to the ways that researchers and developers classify users, then we present a framework for classifying individuals based on the focus of the conducted research. We then offer example theoretical lenses for each category in our framework, and conclude with a discussion of the ramifications of IT user stratification for research.

2. ETHICS AND INFORMATION SYSTEMS RESEARCH

Ethical issues surrounding the development, implementation, and use of information systems have significantly lagged the technical advancements in IT (Laudon, 1995). One reason for this observation may be that, as with the discipline itself, ethical explorations of IS have been fairly diverse in nature. For example, the exploration of broad ethical issues in the *use* of IT, frequently referred to as Computer Ethics, has received significant attention since the 1990's (Floridi, 1999).

Within organizational domains, the research into ethics focuses on information management (e.g., Smith and Hasnas 1999) and ethical issues related to IS development (e.g., Schuldt 2005).

Another area for the consideration of ethics in IS is in the conduct of IS research. This facet necessarily entails a significant degree of introspection on the part of the researcher and yet has received the least explicit exploration. To a significant degree, the consideration of ethics in IS research reflects developments in the broader domain of the social sciences. Specifically, IS researchers are subject to the same guidelines for appropriate research that were defined in the Belmont Report (1979), namely the principles of respect for persons, beneficence and justice. However, in addition to the ethical principles governing all of the social sciences, several researchers have explored the way in which ethical considerations are involved in key aspects of the research community's activity, including the collection and analysis of data, the writing of research articles, and the refereeing of submitted work (Kock et al, 2000).

One framing that has been employed repeatedly for the assessment of IS research ethics is the distinction between teleological and deontological ethics (Davison, 2002; Walsham, 1996). *Teleological ethics* reflect the consideration of appropriate behavior with respect to the expected outcomes or ends of a research effort. Utilitarianism, in which the ethical value of a behavior is determined by the degree to which its results maximize the happiness of the greatest number of individuals, is frequently cited as an exemplar of a teleological approach. By contrast, *deontological ethics* focus on the fundamental obligations or duties of the actor. A deontological perspective tends to emphasize the rules that should govern appropriate action.

Applying these two perspectives can lead academics to a range of ethical considerations in their research process (Davison, 2002). It is our contention that the deontological ethical obligations of IS researchers continues to enjoy a good deal of exposure throughout the discipline and related institutions. In the methodological domain for example, IS researchers can refer to the cornucopia of method-focused articles within IS journals for guidance, as well as across reference disciplines such as psychology, sociology, and economics. Other deontological domains are also well-addressed through the universities, funding organizations, and reviewing practices that make up the institutional context within which the IS researcher operates. Teleological ethical issues associated with IS research are often less thoroughly addressed, however.

One significant stream of IS research that is particularly noteworthy for its emphasis on teleological concerns is that of critical social theory (CST; Klein and Huynh, 2004; Brooke, 2002). The term "critical social theory" is commonly used to describe a variety of theoretical perspectives which share a unifying thread – questioning the conventional wisdom of prevailing schools of thought and institutional practices with a primary focus on issues related to justice and power (Alvesson and Willmott, 2003). While CST is often associated with the Frankfurt School of Adorno, Horkheimer, and Marcuse - culminating in the work of Jürgen Habermas - CST is increasingly understood more broadly to include poststructuralist, deconstructionist, and feminist perspectives (Alvesson and Willmott, 2003, Klein and Huynh, 2004). A unifying thread that runs through all perspectives that we label as CST is their consistent concern with human emancipation from domination in all its forms (Alvesson and Willmott, 2003). These concerns for emancipation, when applied to social groups, focus on the drivers, apparatuses, and implications associated with inclusion, exclusion and marginalization of actors from the groups in question. Marginality, in particular, is salient to research relating to group membership. Due to multiple memberships, actors vary in their level of inclusion within particular groups, and thus these groups, while uniform along certain dimensions, may be quite heterogeneous along other dimensions (Star 1991).

Because of its emphasis on emancipation and related notions such as inclusion, marginalization, domination, control, and power, research that is guided by CST entails an overt consideration of a researcher's values and the surfacing of his or her own ethical assumptions. Indeed, some researchers have argued that the fundamental distinguishing feature of critical research in IS is its basis in ethics and morality (Stahl, 2008). Importantly, for critical researchers, ethical assessment must be applied

not simply to the subjects of research, but also back upon the actions of the researchers themselves. Thus, the concept of critical self-reflection, or *reflexivity* (i.e., the self-conscious exploration of one's assumptions and the recognition that researchers' theoretical commitments serve to shape the observations that they make), is central to the conduct of critical social research (Alvesson & Willmott, 2003). Just such a critically reflective stance is what we seek to engender.

One thread of research within the tradition of CST that is particularly insightful for the present discussion is the study of gender and IS. A number of contemporary authors contend that previous IS studies of gender reflect an essentialist approach (Wilson, 2004; Howcroft & Trauth 2008). *Essentialism* is the principle that all members of a given classification or type share certain innate and invariable characteristics that define them. By treating gender as a dichotomous and nominal variable, many studies of gender in relation to IS phenomena serve to reinforce rather than challenge gender stereotypes (Wilson, 2004: 82).

The important observation for our argument is that this critique is not limited to the treatment of gender. The risks inherit in an essentialist approach are relevant for almost any system of classification that a researcher may choose to employ. Essentialist assumptions along certain dimensions in any given study are necessary – researchers must manage trade-offs and make intellectual commitments in order to practically derive insight from social research. However, there is an ethical risk associated with limiting the classification techniques to functional groups or communities of practice. In each of these stratification schemes there are marginal members whose perspectives may be ignored in favor of prevailing or majority perspectives along these two dimensions. Over time these marginal voices become increasingly extinguished. Thus across the IS discipline as a whole, we argue that in order to avoid the domination and suppression of marginal voices, essentialist assumptions should vary across research studies. By slicing the social world through a broader variety of perspectives, the IS discipline can avoid the inadvertent domination of the voices that are marginalized through these two dominant techniques. Next we provide a framework for social stratification based on the work of Max Weber as a starting point for expanding the dimensions along which researchers classify IT users.

3. SOCIAL STRATIFICATION AND WEBER

Weber addressed the issue of social stratification at some length. In what was largely a refutation of Marx's ideas, he was looking to show how Marx's conceptualization of labor in terms of a single, binary opposition (i.e., capital vs. labor) was overly simplistic (Weber, 1964). In contrast to Marx's classification that was based strictly on access to economic resources, Weber (1964) contended that individuals can have multiple memberships in a number of groups that cut across three dimensions that he refers to as *class*, *status*, and *party*. In Weber's model, economic interests do not necessarily take primacy; as such interests are but one instance of the many factors that may drive social associations. While not giving an individual's class a preferential position among the dimensions along which he or she can be stratified, Weber does acknowledge that class is often a valid dimension along which to stratify individuals. Although Weber agrees with Marx in stating that an individual's class is determined by economic factors, he stresses that mere participation in a class does not necessarily imply social cohesion or class-wide integration. Weber essentially treats class as a non-social form of association, situation, or location, and highlights the potential for mobility between multiplicities of classes (Gane, 2005). He acknowledges that the opportunity for associative relationships does become more likely within a given class, but that "this need not, however, necessarily happen" (Weber, 1964: 424).

Status is another way by which Weber stratified individuals. In contrast to class, which is treated as a situation, Weber uses the term "status" to describe social relations based on a people's shared value systems borne of association and implicated in notions of honor, respect, and esteem. Whereas class-based association is primarily related to economic situations, status-based associations are based on social evaluations in that individual identities and social esteem are rooted in individuals' subjective impressions and are expressive of ongoing social relationships. Weber believed that while economic

class is determined by one's access to economic resources, social status is generally thought to have more to do with one's patterns of consumption (Coser, 1977). Against a backdrop of social relations, patterns of consumption do more to reflect the values of individuals and their interpretation of a variety of social situations. Therefore, Weber argues that stratifying individuals according to status better captures the subjective and affective elements of their self-identification with groups (Gane, 2005).

The third dimension along which Weber stratifies individuals is "party." Parties are associations of individuals formed with the deliberate purpose of influencing social action and therefore operate within the sphere of power. Such political action is oriented toward the acquisition of social power and control of resources. Membership in parties therefore implies intentionality and human agency that manifests in collective action aimed at driving change. Political parties may be social in nature, but are associative rather than communal, as their membership is based on rational forms of social action (i.e. *zweckrational* & *wertrational*, Gane 2005). These forms of social action are targeted toward the realization of a set of goals and necessarily imply the exercise of power (Weber 1964).

Within his discussion of class, status, and party, Weber (1964) also indicated that individuals can be stratified according to their working relationships with technologies, or what he described as "non-human factors of production." He indicated that there is a continuum of technological embeddedness in organizational tasks: from a purely service task to labor which interacts with a multitude of "implements of work" such as tools and machines that enable productive activity. The relationship between individuals and the technologies associated with their labor thus constitutes a fourth dimension along which individuals can be classified. Further, Weber (1964) focused on the nature of work, independent of technology, that characterizes modes of production. He concludes that there are two ideal types of group tasks relating to organizational work: (1) "accumulation," where all group members are engaged in uniform or homogenous tasks; and (2) "combination," where group members each pursue unique, heterogeneous tasks in harmony. Building on this analysis of Weber's work, we will next present a framework to inform the stratification of IT users.

4. IT USER STRATIFICATION FRAMEWORK

We note three overarching aspects of Weber's ideas on social classification. First, while the location of an individual in a certain social class is determined mostly by objective criteria of access to economic resources, the status of individuals is established on subjective value systems, identifications, and social relationships. Both of these associations can be distinguished from membership in a party which aims to mobilize political action, advance valued interests, or engage in a power struggle. Second, Weber highlights the role of the artifacts and technologies that are embedded in the practices of individuals. Finally, Weber stresses the difference between homogenous forms of work, or "accumulation," and differentiated, heterogeneous tasks, or "combination". In Table 1 below we combine these three aspects of Weber's work to offer a multi-dimensional framework along which individuals can be classified (Table 1).

Our argument is that the choice of a classification method should be informed by the focus of the research and the researcher's assumptions concerning the forms of organized work being studied. As the framework indicates, research can be focused on objective elements that characterize an organization and its use of IS. Examples of this may be research that looks at the economic implications of the use of strategic IS or at the influence of various dimensions of organizational structure on the implementation outcomes of IS. Additionally, research can focus on interpretive aspects and processes that underlie an organizational situation. For example, research that tries to uncover the manner in which an IS is appropriated and given diverse meanings by different organizational groups. Research may also highlight political processes and power relations that underscore multiple organizational situations and IS implementation and use, as groups intentionally seek to protect their interests. For example, research that examines management attempts to enforce a new technology and its associated behavioral scripts and different organizational groups' resistance to such efforts. The final column emphasizes technological distinctions, or the differences and

similarities of the artifacts that are embedded in the work practices of groups or individuals. This distinction is particularly relevant to studies of IT, especially work that involves an in-depth appreciation of IT artifacts. Situations where researchers are looking to understand the implications of integrated architectures versus service-oriented, modular structures might be an example where categorizing users through their association with technology may be relevant, similarly with technological interoperability and the setting of technological standards.

Research focus

		Objective elements	*Interpretation*	*Power relations*	*Technology*
		"Class": Situation / Location	"Status": Norms & Values	"Party": Intention / Purpose	"Implements of work"
Assumptions of forms of work	**Homogeneity** *"accumulation"*	Uniform Tasks *(Example lens: Communities of practice)*	Symbolism *(Example lens: Social representations)*	Union *(Example lens: Labour union)*	Standardization *(Example lens: Actor-Network)*
	Heterogeneity *"combination"*	Division of Labor *(Example lens: Functional groups)*	Rationality *(Example lens: Institutional Logic)*	Coalition *(Example lens: Political party)*	Connection *(Example lens: Object Worlds)*

Table 1: User Classification framework with examples of associated means of social stratification.

In terms of the researcher's assumptions concerning forms of organized work, they move along a continuum which on one extreme emphasizes heterogeneity and on the other stresses homogeneity. Assuming heterogeneity implies highlighting the differences in group members' tasks and objectives within the group. For example, research that focuses on functional groups presupposes that members of each functional group perform different jobs, engage in different practices, and possess different skills that combine together to bring about synergetic outcomes (i.e., division of labor). Assuming homogeneity, on the other hand, implies emphasizing the commonalities in members' tasks and goals, which drive them toward interacting with one another and maintaining ongoing relationships. For example, much of the research on communities of practice accepts that what binds community members together is that they engage in a similar practice, face similar problems, and share similar concerns.

Taken together, the two dimensions of forms of work and research focus yield eight different broad theoretical domains by which individuals in organizations can be classified. It is important to note that these categories are not mutually exclusive. They may overlap or be combined, and a number of lenses may apply within each category or across categories. We review the different categories below and offer sample theoretical lenses that seem to be consistent with the spirit of each category.

4.1 Objective elements

Research that focuses on objective elements typically highlights readily identifiable assessment criteria to evaluate individual or group performance and stresses the formal labels and definitions that characterize individuals' roles, responsibilities, and location within the organizational structure. Assumptions of forms of work may range from an emphasis on similarities among group members' tasks and goals (which serve as a common denominator in facilitating their relationships), to underlining differences among members whose complementary skills and knowledge are integrated to support organized work.

4.1.1 Uniform Tasks
Research that employs the concept of communities of practice is exemplary of categorization according to objective criteria that highlights homogeneity (Brown & Duguid 1991; Wenger 1999).

Research on communities of practice is used to gauge forms of organizing that may deviate from officially mandated organizational structures and bureaucratic division lines. This is rationalized by arguing that individuals in organizations often create informal associations based on the commonality in activities that preoccupy them on a daily basis and that may not conform to formal organizational structures (Brown & Duguid 1991). Thus researchers who stratify individuals across communities of practice do so according to the objective basis of an individual's work practices. If a person's daily work involves fielding calls at a help desk, that person is likely to be classified into the help desk workers' community of practice, regardless of the organizational department to which he or she may formally belong to. However, using a lens of communities of practice may involve an over-emphasis of salient common practices, and a marginalization of peripheral, uncommon practices and the individuals that have a stake in the practices of a community, yet are not fully pledged members of the community, such as supporting staff associated with the community, or even its managerial staff. Thus, using communities of practice as a basis for stratification highlights certain aspects of IT-related activity, but may neglect peripheral stakeholders who are not fully involved in the practice.

4.1.2 Division of Labor
Research that focuses on functional groups in organizations typifies a form of categorization according to objective criteria that highlights heterogeneity. The traditional way that researchers stratify organizations is through functional groups, which represent the objective locations of individuals within formal organizational structures. Members of each functional group have various skills and specializations and perform different jobs, which are combined to facilitate increased productivity. In their classic work, Lawrence and Lorsch (1967) paved the way for a contingency theory of organizational structure based on levels of differentiation and integration of functional groups within manufacturing firms. They are consistent with early sociologists in their conception of the division of labor, as can be understood from their Spencerian description of firm evolution: "as systems become large, they differentiate into parts, and the functioning of these separate parts has to be integrated if the entire system is to be viable" (p.6). Lawrence and Lorsch attribute these differences to variation in the environments that each of these functional groups faces. In focusing on formal and objective organizational structures, functional stratification is inclined to favor a managerial view of the organization which tends to represent organizational structures, actors, and their activities in a relatively neat and unproblematic manner (Ciborra, 2000). Alternative perspectives, informal practices, and bottom-up organic associations, identifications, and structuring are often marginalized or altogether ignored.

4.2 Interpretation

A fundamental assumption of classifying individuals according to objective elements is that the task or functional group drives individuals' cognitive and emotional orientation. Although Weber acknowledges that this is often the case, he indicates that the situation of individuals, whether it is a class or a functional department, is not necessarily the primary driver for their interests or inclinations. Along with Weber, we hold that an individual's situation is simply an opportunity for social (affective and value-based) group membership rather than a necessary driver of membership. Often local social interpretations and a sense of belonging take a prime role in guiding a given task or behavior. Individuals have a certain degree of mobility within and across organizations and have an array of associations outside of a given organizational group, set of tasks, or technological artifacts. Therefore, it may often be more appropriate to stratify individuals according to the interpretations, symbol systems, goals, and values that guide their actions.

4.2.1 Symbolism
When researchers adopt a perspective that emphasizes homogeneity within groups, symbol systems such as language are vital for understanding how group members organize and develop a shared or collective understanding of some aspects of their environment. Examples of such a perspective include various semiotic and linguistic approaches such as speech-act analysis (Lyytinen 1985) as well as social-psychological approaches such as Moscovici's theory of social representations (1988). A social representations perspective, for example, focuses on the collective production of common

social knowledge. Social representations are shared elaborations of unfamiliar phenomena or events that serve to render them meaningful for social actors (Moscovici, 1988). Such phenomena or events only become meaningful by virtue of their representations, which are formed by group members through ongoing communicative activities. Only by being represented by a group of people by means of familiar conceptual devices can an event or phenomenon become a social object that can be collectively perceived, characterized, compared to other social objects, and used in language and action. Because a social representations perspective focuses on the creation of shared representations of reality, it tends to glance over personal variations in the understanding of different events. Furthermore, since the perspective emphasizes *symbolic* regularities and common experiences of individuals, it may marginalize the physical, technical, and tangible elements that may play an important role in mediating inter-personal associations and communicative activities. Despite these limitations, stratifying according to social representations cuts across function or practice-based stratification because the groups that form social representations are not likely to be aligned with existing communities of practice or functional groups. Therefore, this form of stratifying offers a new way of examining organizational phenomena.

4.2.2 Rationality

If, however, the researcher's assumption is that of heterogeneity within groups, it may be necessary to look beyond the specific practices and symbol sets for broader unifying themes by which to stratify individuals whose practices and perspectives are not entirely uniform. As we noted above, functional groups may contain multiple expertise, roles, and perspectives. Similarly, guiding principles, values, and assumptions may be prevalent across diverse actors in a society. Various terms have been used to describe such categorization in terms of institutionalized domains, including habitus (Bourdieu 1977), modes of rationality (Clegg & Wilson 1992), and institutional logics (Friedland & Alford 1991). Institutional logics, for example, have been used to describe symbolically-grounded organizing principles that underpin individual action – both the means and the ends of those actions - in a manner consistent with a given institution (Friedland & Alford 1991). Within a given institutional logic, individuals can express heterogeneous identities across a variety of domains. Thus such a lens enables the simultaneous grouping and appreciation of plurality in a given research domain. For example, Friedland & Alford (1991) indicate that the institutions of science and religion both involve the pursuit of truth, but have independent rationalities and assumptions. Thus, although heterogeneous, science and religion can be grouped together by nature of their objectives. Similarly, among religious institutions one finds a great deal of heterogeneity, yet one might readily stratify those with a religious logic in contrast to those with a scientific logic in certain instances. Within an organizational domain, heterogeneous organizational groups can be stratified by virtue of relevant broader institutional logics. Quite consistent with Weber, lenses such as that of an institutional logic focus on regularities of institutional identification across heterogeneous members, but often neglect issues relating to human agency and rational calculation of interests, thus silencing those who do not accept predominant institutional systems.

4.3 Power Relations

Research that focuses on power relations in organizations typically highlights conflictual or competitive relationships. Such research emphasizes the attempts by different organizational stakeholders to influence each other's activities, advance their interests, or gain a position from which they are able to exert power and control a range of organizational processes. In this perspective, individuals may join or align themselves with a group with the deliberate purpose of defending or pursuing certain interests in a competitive struggle for resources or influence.

4.3.1 Union

When researchers adopt a perspective that emphasizes homogeneity within groups, people's common interests and backgrounds are emphasized when explaining the formation and functioning of social associations which aim to pursue certain goals. In cases where common interests are shared by individuals that are homogenous along applicable dimensions, an analogy of a labor union may apply. Union members typically share a similar set of challenges and pursue mutual objectives such as wage

increases, reduction of working hours, and improvement of working conditions. While this approach highlights the commonalities binding the involved individuals as a way to explain their ability to negotiate with and contest institutionalized forces, it may marginalize those dissenting voices whose interests do not perfectly align with those of the established union groups and who therefore are not taken into account in the struggle for influence, control, and resources.

4.3.2 Coalition

Political aims are not always pursued by homogenous unions. Often times, the advancement of certain interests or the struggle for power and control over resources can be undertaken by groups of people whose individual aims, beliefs, and views of the world may differ significantly. When researchers adopt a perspective that emphasizes heterogeneity within groups, people's diverse interests and backgrounds are highlighted when explaining the formation and functioning of social associations which aim to pursue certain goals. For example, in many parliamentary political systems, the government in power is composed of a coalition of multiple parties. Each party may represent a different constituency, espouse different values, and aim to advance its own individual goals. Despite this heterogeneity, these parties form an alliance that situates them in a favorable position from which to realize their ambitions. While stratification of groups or individuals according to coalitions emphasizes heterogeneous actors and intentionality their quest for increased power, control, or economic profits, it may marginalize the agendas and viewpoints of those groups and individuals who are not part of the coalition and whose claims are therefore not clearly and vocally articulated.

4.4 Technology

Research that focuses on technology typically highlights the concrete, material dimensions of organizations. Such research stresses the importance that physical objects have in shaping social reality, and in mediating interpersonal, inter-group, and interorganizational associations. It further discusses how different organizational environments may be characterized based on their technological landscape – the ecology of technological artifacts that are used to facilitate work and action that are conducted within organizational domains. Assumptions that guide stratification based on technological factors can, on the one hand, emphasize consistency of technologies or standards and the route to such consistency. Alternative views may highlight the multiplicity of technologies, and connections among diverse platforms and applications.

4.4.1 Standardization

Researchers can stratify individuals based on uniformity of the technologies they use. An obvious example are the ubiquitous "user group" for a given type of application. In such cases, the researcher categorizes users through assumptions of homogeneity of artifact usage in their work. Assumptions of homogeneity also apply to the formation of standards, for example in research that is guided by actor-network theory. Research guided by actor-network theory typically depicts a struggle to form a durable actor-network in an attempt to set a unified technological standard that cuts across different contexts, such as companies, industries, and countries (Callon 1992). While such research using this lens usually provides rich descriptions of the negotiations, alliances, and political tactics that characterize the efforts to assemble (i.e., translate) a robust actor-network, it often does so from the point of view of a single actant, or 'heterogeneous engineer'. Thus, this research tends to overlook the perspectives of other involved actants and the possibility that multiple translations may occur simultaneously (Star & Griesemer, 1989).

4.4.2 Connection

Researchers can stratify individuals based on some form of congruence or interfacing between diverse technologies. Such stratification of individuals or groups would be applicable when a given artifact's role in activity is not uniform across actors. For example, in his work on design engineers, Bucciarelli (1994) found that different engineers worked within a uniquely personal ecology of artifacts, concepts, and practices that he described as "object worlds." While no two object worlds are alike, they can be more or less congruent. In using such a lens, individuals may be stratified by the relative congruence of their object worlds. Using a lens of object worlds may stress the implications of

congruence and connection of diverse individual ecologies, but neglect other dimensions along which individuals may have regularities such as formal arrangements, social interests, etc.

5. DISCUSSION & CONCLUSION

In his book, "Images of Organization" (1986), Morgan proposes a range of metaphors to conceptualize and understand organizations. Ranging from "cultures" to "psychic prisons", each metaphor offers a different vocabulary and imagery through which organizations are reflected. Any one metaphor only exposes a certain aspect of the complex multi-dimensional phenomena that comprise organizations. Put together, different metaphors can assist in generating a more profound and nuanced understanding of the nature of organizations. In many ways, our claim in this paper is similar to Morgan's. Any one method of classifying social actors in organizations can only expose certain aspects of the social dynamics in organizations and promotes a particular understanding of interpersonal processes. A recurrent application of an organizational perspective that advocates a common classification logic may therefore have a stifling effect on research outcomes and on the way in which individuals that are informed by this research perceive organizations. The choice of a classification system therefore necessarily constitutes a significant ethical decision.

Beyond "demographic" characteristics such as race, gender, age, etc., it is often important to stratify IT users across social groups. Within the IS discipline, there are two social dimensions by which groups are typically stratified – their functional location, or their common practices. As the discipline continues to focus on these two primary forms of stratification, the voices of marginal group members continue to go unheard. Over time the continued focus on functional and practice-based groups will reinforce the perspectives of researchers focusing on these common associations, leading to a systematic under-representation of a significant element of the organizational population – those with unique practices and marginal members of communities. While there is no single grouping or perspective that assures a voice across organizational actors, if a variety of slices of social activity are continually used and compared in a dialectical fashion across research projects, over time the discipline can move *toward* greater inclusion of all organizational actors. To guide this continually diverse social slicing activity, we have proposed a multi-dimensional framework that provides eight broad domains of IS user stratification (see Table 1), followed by example theoretical lenses within each broad domain that suggest the need for different classification systems which highlight certain organizational aspects while excluding others.

It is important to note that each method for classifying individuals focuses on certain aspects of an organizational landscape at the expense of others. The aspects that are neglected in a given analysis may reflect the most salient concerns of certain organizational actors, and these concerns will be obscured or marginalized in the research outcomes. For example, a researcher that examines the implementation of a new system may look at the reaction of different functional groups to the new system, looking for similarities and differences across the groups, or for different levels of acceptance. Focusing on functional groups, however, may obscure the existence of informal social associations in the implementing organization and the role that they play in shaping people's reactions to the new system. Thus, by focusing on formal organizational categories, informal practices, identities, communication patterns, concerns, or power relations may be marginalized or ignored.

Alternatively, if a researcher looks at organizations as "communities of communities" (Brown & Duguid 1991), the boundaries and participation in such communities will need to be clearly defined and the research will not necessarily take into consideration people's memberships in multiple communities of practice, "outsider" individuals in organizations that cannot be easily grouped due to idiosyncratic practices, or "monsters" created by social marginalization (Bowker & Star 1999). Often marginalized non-members might be so small a population that their presence and inclusion may be perceived as irrelevant to organizational analysis. However, these obscured populations (e.g., racially discriminated groups) may be precisely what where researchers should focus on in order to make the greatest ethical impact. IS research that assesses a system's merits from the prevailing perspective of

a community of practice may inadvertently overlook ways that a system might further isolate the disenfranchised.

Importantly, while proposing a number of possible classification systems, we make no claims as to the superiority of one over another. Rather, we point out that each one emphasizes certain concerns, while neglecting others. In pointing out that this emphasis and neglect often has ethical implications, we make no normative assertions in line with a particular moral argument. Rather, we argue that any method of user classification will necessarily advance certain voices and (usually implicitly) silence other voices as a consequence of applying the relevant scheme. This silencing of voices is a key indicator that ethical issues pertain to the research undertaking, regardless of the ethical perspective that a researcher may want to adopt. For example, such marginalization may imply that user "rights" are somehow being disregarded (Schuldt 2005). Perhaps this marginalization reinforces the ideological domination from which critical social theorists may wish to emancipate the user (Klein and Huynh, 2004). Or perhaps this marginalization simply signals the need to enter into a discourse about the ethical ramifications of the classification scheme (e.g., Stahl 2007).

However one wishes to determine what is ethical and what is not, the key contribution of this paper to IS research is to draw researchers' attention to the ethical implications of the way that they stratify organizational actors in their research. By leveraging Max Weber's (1964) work on social stratification, we propose a novel framework that takes into account both the research focus and assumptions of forms of work. Beyond topics relating to bureaucratization and rationalization, Weber's rich wealth of work remains largely neglected in organizational literature (Lounsbury & Carberry 2005). His theories relating of the multidimensional stratification of individuals is particularly salient to issues facing postmodern organizational forms (Lounsbury & Carberry 2005) where organizations are becoming less functionally-oriented with the emergence of alternative, dynamic forms of organizing and the ubiquity of knowledge work (Yoo et al 2006). While our purpose in this paper is to call attention to the ethical implications of user stratification, the framework we provide is the first such framework that analyzes stratification methods. Future research using this framework can look to situate existing research methods evident in the literature to better understand the issues that are emphasized and those that may be neglected within IS research. Also, while we focus on the way in which researchers socially stratify the subjects of their research, similarly this framework can be used by development teams to categorize users in increasingly novel ways, or by organizational managers to better understand the users of information technologies within their organizations. Finally, our framework can be used to guide specific research efforts that look to triangulate social phenomena across different methods of categorization to gain novel insight into organizational dynamics.

6. REFERENCES

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